

Remarks

Reconsideration is respectfully requested in view of the following remarks. Claims 1-25 are presently in the application. This response does not amend any claims.

Allowable Subject Matter

Applicants thank the Examiner for allowing claims 17-25, and for indicating that claims 2-11, 13, 15 and 16 would be allowable if rewritten in independent form to include all limitations of their respective base claims and any intervening claims.

Telephonic Interview

Applicants thank the Examiner for the courtesy of a telephonic interview on December 2, 2005, in which the appropriateness of the Final Office Action was discussed. Because the Action presents a rejection based on a new reference, the Examiner agreed to withdraw the final rejection.

Rejections under 35 U.S.C. § 103(a)

Claims 1, 12 and 14 stand rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent Application No. 2004/0090625 to Fischer et al. (Fischer) in view of U.S. Pat. No. 6,796,195 to Povey et al. (Povey). This rejection is respectfully traversed.

Claim 1

Independent claim 1 is directed toward:

A method comprising monitoring a fermentation process of a population of cells in a suspension or slurry by detecting ultrasound backscattered from the cells in the suspension or slurry.

Fischer and Povey do not, singularly or in combination, teach or suggest such a method. For example, Fischer is silent concerning “detecting ultrasound backscattered from the cells” in a suspension or slurry. More particularly, Fischer teaches a fluid containing “organic particles, preferably particles arising from organisms” (see paragraph 25), but is silent as to “cells.” Povey does not overcome the deficiencies of Fischer, as Povey is also silent as to “detecting ultrasound

backscattered from the cells.” Povey teaches a “test cell” (see, e.g., col. 5, lines 12-14), but this refers to a testing unit and not to a cell in the biological sense.

Additionally, Fischer teaches away from combining its teachings with Povey. For example, Fischer teaches “a probe generating a measuring signal, preferably via light scattering, ultrasound, extinction, or Coriolis force . . . with *light scattering being particularly preferred*.” See paragraph 17 (emphasis added). Accordingly, the remaining embodiments described by Fischer employ light as a measuring signal. See, e.g.: paragraphs 18, 29-31; Fig. 1; and independent claim 1. The above passage from paragraph 17 is the only place Fischer mentions “ultrasound.” Fischer’s overwhelming emphasis on light scattering provides no motivation for combining its teachings with the acoustic speckle teachings of Povey.

For at least these reasons, claim 1 is allowable over Fischer and Povey. The rejection should be withdrawn, and such action is respectfully requested.

Claim 12

Independent claim 12 is directed toward:

A method comprising monitoring fermentation occurring in a fermentor by *detecting ultrasound backscattered from cells* in a fermentation broth as a function of time, wherein the detecting is with a transducer positioned inside the fermentor.

As explained above with respect to claim 1, Fischer and Povey do not, singularly or in combination, teach or suggest “detecting ultrasound backscattered from cells.” Additionally, there is no motivation to combine Fischer and Povey to obtain the method of claim 12. For at least these reasons, claim 12 is allowable over Fischer and Povey. Dependent claim 14 is likewise allowable for the same reasons, as well as for the unique combination of features recited therein. The rejection should be withdrawn, and such action is respectfully requested.

Objections to Claims with Allowable Subject Matter

Claims 2-11, 13, 15 and 16 depend from allowable base claims and are therefore allowable. The objection should be withdrawn, and such action is respectfully requested.

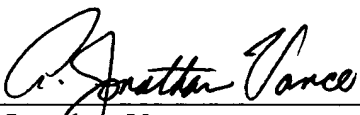
Conclusion

In light of the foregoing remarks, all claims are in condition for allowance. Should any issues remain, the Examiner is requested to call the undersigned attorney.

Respectfully submitted,

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